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SOME FACTORS OF SUCCESS IN CORN BELT FARMING.

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Gentlemen: I must ask this association to accept my paper as the contribution of a layman, an ordinary farmer making no pretense of being an economist. I came in appreciative response to the flattering invitation of your president, well knowing that your meeting will furnish me educational advantages I could ill afford to miss.

My subject is not of my own choosing. Success in any successful sense of the term seems quite like the study of ancient history. Possibly it may have been that President Handschin suspected that I had seen so little of success at close hand recently that my perspective should be better than that of some others.

The factors of success in farming are so varied in character that it may be well to mention a few of them briefly. Several have already been ably discussed, and mere mention is almost unnecessary. One of these is the problem of credit, and in my opinion the phase of this question which should give the average farmer most concern just now is how he may go successfully about helping to contract a large part of the credit already advanced him.

Another factor already discussed is that of price, involving the problems of transportation and distribution, and of coöperative marketing. My fear is that in this last direction we may have moved so fast that our perspective may have become distorted, preventing us from distinguishing progress from retrogression. It is only by collective action that the farmer may hope to influence these factors, and our influence may not prove to be as powerful as we have dreamed. If it does so prove, it will need to be most righteously and discreetly exercised; or it may prove a dangerous boomerang in inexperienced hands.

But there *are* factors of success over which the individual farmer *may* hope to exercise considerable control, and it is chiefly of these that I shall speak. Chief among these is the factor of cost of production. He may influence this factor both directly and indirectly; *directly,* by reducing his expenditures without decreasing his production, and *indirectly,* by increasing per acre production without a corresponding increase in expenditures.

Under the indirect phase of cost reduction come such problems of farm management as the adjustment of systems of rotation and fertilization to the end that the fertility of the soil may be maintained and increased, thus raising per acre production by a cumulative process. Such systems, too, should equalize the distribution of labor, thus making it possible for a given number of workers to produce more goods.

Another factor of success may be the diversification of crops and enterprises as an insurance against calamitous losses in any one year.

Still another may be the prevention of wastes by the utilization of by-products and bulky materials, and their fabrication into salable and transportable finished products.

During the years of the great war and since, when adjustment and readjustment of economic conditions have come about with lightning-like rapidity, not the least factor of success has been the ability of the farmer to adjust his practices and his crops and enterprises so to meet conditions as to avoid loss.

Certain other factors of which I may speak briefly in conclusion are not so easily defined, not so readily influenced, and far less frequently recognized than those I have outlined. It may even be out of order to discuss them here, but I feel that they *do* deserve mention as very influential factors of success in farming.

REDUCING COSTS.

Let us discuss some phases of the factor of per unit production costs. Often they may be lowered by the elimination of certain useless or unnecessary operations, such as the capping of wheat shocks. Perhaps this practice is a survival from the day when there was a greater intervening time between the cutting and thrashing of grain. In those days the custom may have been economical, but it certainly increases the labor outlay for shocking a fourth or more, and frequently leads to a further labor cost, because generally a large number of caps must be replaced after a storm or removed to facilitate drying.

On our Illinois farm, where soy beans are part of the system, we bind the beans as we do wheat, but let the bundles fall singly, eliminating the bundle carrier. We follow the binder with a wheat drill, drilling wheat seed directly into the stubble ground without mechanical preparation of the seed bed, which we once thought necessary, but which was really a hindrance, besides being expensive. The bundles of beans thus fall on ground already seeded to wheat. Before we owned our own separator, and could depend upon hulling promptly, we felt compelled to set the bundles up in shocks. Moving a sheaf of soys means loss of seed by shattering, and sometimes before they were hulled the *shocks* had to be moved and reset to avoid killing the wheat beneath. Now, we leave the bundles where they fall until collected on racks to go to the separator, or until weather conditions make it necessary to set them up into shocks.

Sometimes cheaper methods can be substituted for expensive ones, saving a *part* of the labor cost of an operation. After trying out various relatively high-priced straw spreaders, Mr. Riegel, who is in active management of our Illinois farm, concocted a crude but simple and cheap arrangement of poles that serves the purpose as well as the best machine we tried out. The same amount of labor used with this home-made contraption spreads many times the straw the elaborate machines handled.

The two-row cultivator, in the hands of an intelligent operator, cultivates twice as much corn as a single-row implement, and the rotary hoe makes it possible for a boy to cultivate almost three times as many acres of soy beans or corn as a man with a single-row cultivator.

Perhaps one of the most wasteful institutions of corn belt farming is that of the big thrashing ring. Generally careless help makes it impossible to save the grain that should be saved, and the indifferent, carefree attitude of a large number of somewhat transient employees, when assembled in a gang, is appalling Indeed, so is that of some farm owners! Our cost accounting made us realize it more than ever before. The year before we retired from the big ring we paid out, for labor alone, 8 cents per bushel for the thrashing of our wheat. The first year we were out of the ring the same item amounted to 1½ cents per bushel. The delays we used to endure before getting our crop thrashed were positively nerve racking, purse wrecking, too, at times! Our last oats crop became a total loss, due to delay occasioned by the big thrashing ring. Custom rigs never did us a first-class job of bean hulling, but now that we have our own small separator, we are able to do relatively a perfect job. The saving in quantity and quality on a few soy bean crops alone will pay for the machine.

Often animal labor may be substituted for man labor in harvesting crops, effecting a big saving. Clover that we used to cut and make into hay we now let the live stock consume in the field. Cattle, hogs, and sheep are more effective corn pickers than men, and the beauty of it is they seem to enjoy paying for the privilege. Manure is better distributed, at no cost, and otherwise unavoidable losses in fertility are prevented. When we winter feed hogs in a dry lot we use a big self-feeder holding 6 or 7 thousand bushels of corn, which serves two purposes, that of granary and self-feeder. The cost is less than for small self-feeders per unit of capacity, and labor of an extra handling is saved.

Elimination of useless fences has saved us much in repair costs and weed control. When we again need small lots or fields we feel that we can more economically remake them than maintain them. A certain amount of fence moving is justified by the amount of interest money saved on mere capital investment.

Special or local conditions may sometimes be turned to account in reducing expenditures. A former efficient employee, with a family of several reliable boys, has now rented a small neighboring farm. After this man's work is done, he and his boys are glad to put in what otherwise might be many idle hours working for us. We pay them more money than our resident employees, but the additional compensation would not cover the perquisites the man would get, were he living on our place, and the board of his boys. This family has increased its income; we have decreased our expenditures; the benefit is mutual. To mention another instance of special conditions which has afforded opportunity for saving, economic maladjustment has made corn temporarily so much cheaper than gasoline as a source of tractive power that many have used it while tractors stood idle. Incidentally this may be calculated to have some effect on the price of corn eventually.

These have all been examples of direct reduction of costs. But by carefully planning and revising systems of rotation and fertilization and animal enterprise it may be possible *indirectly* to reduce per unit production costs by increasing per acre production without a balancing outlay. Records of yields on our Illinois farm are not available prior to 1909, but I am satisfied that it is now as easy—and less expensive, so far as hours of labor is concerned—to grow 72 bushels of corn per acre—as we did this year—as it formerly was to grow 50. If the 50 bushels paid cost of production in 1909, were the present cost of labor and equipment the same as then, and were the price of the corn the same, then the additional 22 bushels would surely pay well for the purchased fertilizer added in the form of raw rock phosphate and limestone! There were lots of "ifs" in that sentence, but, at any rate, if there has been no great gain, there must be a big saving from loss.

Our increasing yields have been very gradual, the cumulative results of a rational system of management, in which the rather lavish use of legumes and the addition of phosphorus have played leading parts. Gradually we have learned how to employ more and more legumes profitably, so that where originally we had a legume on the cultivated area two years out of four, we now employ them *every* year. Our rotation has become: first year corn, with soy beans planted in every hill, followed the second year by soy beans alone. In the fall of this year wheat is seeded in the soy bean stubble, and the following spring a clover mixture is seeded in the wheat. This clover, especially sweet clover, usually grows large enough to furnish some pasturage after harvest and stands over to complete the four-year rotation. This program was adopted only after careful records had proven oats a failure as a money crop under our conditions, and that soy beans cost us very little more per acre to raise than corn (indeed, they have cost less this year), while the gross money value per acre of the bean crop ranges from a little less *some* years to considerably *more* in others—*notably* more this season.

In the fall of 1913 we began keeping a record of all labor. At the end of 1914 we found that our oats crop had cost us a half hour less man labor, but an hour more horse labor per acre than our wheat. The wheat yielded 30½ bushels, the oats 44½ bushels per acre. Translated into the dollar language on the basis of 1914 prices, this meant a gross difference per acre of just $9. The yields were about average ones as we had experienced them. Taking all costs into consideration, including taxes, depreciation on equipment, depletion of fertility, insurance on equipment and the grain itself, managerial cost, pro-rated odd job expense, etc., we figured we had about raised the oats for nothing, and concluded that as a nurse crop, oats were a failure, because, in the first place, they are not a nurse in any sense, in the second, they did not pay their way for us.

On the other hand, only 3 out of our 13 successive wheat crops have averaged less than 30 bushels, and the average yield for the entire 13 crops, aggregating more than 1,500 acres, has been over 30 bushels, and without the help of a single phenomenal yield.

Our cost records showed that the 1914 crop of soy beans (132 acres) had cost one third of an hour more man labor and 3 hours more horse labor per acre than had our 229 acres of corn. Part of the beans yielded 2¼ tons of hay and the rest 15½ bushels of seed per acre. Our corn made 53.6 bushels per acre. By way of comparison, *this* year's crop of beans yielded 29 bushels and the corn

72 bushels. At present prices this puts the legume crop away ahead this year, not considering the difference in the depletion of fertility and value of by-products. An acre's yield of soy bean straw is worth more than 5 acres of stalk pasture.

So it came about that we substituted soys for oats on 10 per cent of the entire acreage of this farm, and for corn on another 10 per cent. A pretty radical change, but made only after careful study and deliberation. This shift has helped us wonderfully in equalizing the distribution of our labor throughout the year, not the least part of which was the substitution of *easy* spring or late fall breaking for soys, for the hard, tedious late summer plowing for wheat. I wish I had more time to discuss this interesting side of this change.

Diversification of Crops.

Diversification of crops has saved us several times from painful experiences; for example, we were glad the year we lost our oats crop that we were not practicing the usual corn and oats rotation. Another time when our own ignorance made soys a failure we were glad we had some corn and wheat. Variation of live-stock enterprises is no less an insurance than crop diversification. We endeavor to use all of the meat animals when times are auspicious for live-stock endeavor, and horses and poultry also play important parts in our scheme.

Utilization of Bulky Feeds and Waste Materials.

Hogs we need to consume and turn our raw concentrates into a finished product, and to a less degree, of course, for the consumption of forage. But as transformers of roughages and waste by-products cattle and sheep are the machines par excellence. Sheep, moreover, save us lots of weed mowing by turning a hindrance into a help. What goes through a sheep seldom grows, but is a great assistance to the growth of planted crops. We find that we can profitably use all classes of meat animals, sometimes not all the same year, seldom all at the same season, but rather suiting each to its *particular purpose* at the *proper season*. Thus, if not perilously high in price, we like to buy sheep in the late summer or fall of seasons like *this,* when weeds are abundant, and sell them in the winter or early spring, after they have done their work and have received a grain finish. We like to feed corn to good quality steers on sweet clover pasture for an early fall market, and to cheaper ones we feed soy bean straw, silage, and cull and cracked beans for an early spring market.

We prefer buying hogs in late fall or winter to hog off corn and beans, and to finish in the dry lot around the self-feeder for a March or April market. Sometimes it is possible to buy pigs in May, June, or July at a reasonable price. They grow splendidly on mixed clover pasture with a light corn ration, and are then ready to finish on a field of early corn and beans some time between September 15 and October 10.

Horses we like to buy thin and in the rough about this season of the year, when they are cheap, carry them through the rest of the winter on soy straw, silage, and cull beans, and be ready to sell good teams in the spring period of scarcity and high prices to those who realize their needs only after emergencies of the crop season make them apparent. This practice usually makes us money, while in former years we used to write off a big annual depreciation from our horse account. As long as it is a source of profit we like to feel that we have available a surplus of horse-power, which we feel is the most flexible tractive power we have. Moreover, instead of depreciating with use, if properly handled, it appreciates from the training it receives.

Last year poultry was the only live stock which gave a satisfactory accounting for us, except where we still raise our own feeder hogs on one or two farms. In fact, feeders of any description during 1919–'20 and much of '21 looked perilously high priced to us, and we practically refrained from buying any from the spring of '19 to the late summer of '21. We are now marketing some sheep which have made money. With the exceptions of these sheep and of poultry, all live stock we have owned since January 1, 1919, has paid the penalty of a falling inventory. The penalty has been comparatively light, however, for with the exception of some young unbroken colts, which could hardly be given away, we did not let the market fall far from under us before letting loose everything that looked top heavy enough to fall. The colts have taught us that, in general, those live-stock investments are safest which give promise of the most rapid turn over.

Making Adjustments to Meet Changing Economic Conditions.

This discussion brings us naturally to a consideration of another factor which has played a big part in the success or failure of corn belt farmers the past 5 years, namely, the manner in which they were able or willing to adjust the details of their business to meet the demands of changing needs and economic conditions. Much abuse has been heaped upon the heads of those who have been called "in-and-outers," particularly those who have played a more or less erratic part in the live-stock game. This criticism, coming from the agricultural press and no less from seasoned steady live-stock men themselves, has been quite general and for the most part pretty well founded. But many of the wise ones who went a never-changing course have now become "down-and-outers" simply because they paid no heed to changing economic conditions. Others have failed because they mistook effects for causes and changed accordingly, or only after it was too late. Changes to meet changing conditions are constantly needed; sometimes the change may be a calm and measured evolution; sometimes revolutionary tactics are necessary. In our hog enterprises we have been faced with the necessity for both types of change.

A few men are still growing the type of hog we started with when we first began farming. It was a type suitable only for an unsupplemented corn ration, and was probably a relic of the day when corn was considered the only useful hog feed. It was the high-qualitied, fine boned, compact, pony-built type which is too fat from pighood to rustle for a living. We finally concluded that what we wanted was almost the reverse of this type, a big, long, deep-bodied hog, not too coarse and slow maturing, but the kind that can make good use of legume pasture in hot weather without suffering from sun stroke. As soon as we began breeding for this type we began to realize so much more profit from hogs that we thought if some hogs were good a great many would be very much more worth while. We increased the number of our brood sows to more than 100, and found that our success decreased in about the same ratio that the square of our numbers increased.

The man to whom the job of pig-raising had been delegated was not equal to the added burden we had thrust upon him, and the manager found that it was more than one man's job to properly supervise the spring work on 800 acres of corn belt land and at the same time look personally after the welfare of 100 sows and their pigs. Accordingly we cut down the number of our brood sows to what we thought the man could successfully care for. Then war came, and with it Uncle Sam's guarantee of profit to the hog producer. We decided to supplement our home-raised pigs with purchased feeders, believing that the man who could not raise several hundred pigs to past weaning time *might*, however, successfully feed out that many if they were turned over to him at the weight of 100 pounds. It worked out that way after we learned not to mix the two methods. We fattened out the sows and bought all our feeders. We bought hogs, good, bad, and indifferent, varying the price to correspond with the promise the hog gave of profit. We fed out carloads of Arkansas and Missouri razorbacks which did not make us feel proud until they landed in the bank; and we fed other carloads of Wisconsin hogs that we were never ashamed of.

During this period it was a continual process of study to know how to shift and adjust our methods to suit the different types of animals we were handling. They were as different as daylight from dark. The Southern hog was a little, fine-boned, ill-bred, pudgy animal set on the legs of a race horse and possessing the fighting qualities of a bear when cornered or enraged. One had to deal cautiously with them to avoid serious danger to both purse and person. They were covered with parasites both within and without, which had to be removed before any progress could be made. They had to be nursed carefully along on forage, increasing concentrated feed gradually through four to six weeks before giving free access to corn. After that they seemed to fatten almost over night into fat little hogs of about 200 pounds average weight.

On the other hand, the Wisconsin hog was a vigorous, healthy fellow, that got right down to business without any preliminaries, except vaccination, and kept right on making profitable gains up to about 300 pounds.

The men with whom we dealt in buying these hogs were as different—and often as *difficult*—to deal with as their live stock. Many rapid adjustments of temperament and habits of mind I had to make, as well as changes of farm practice. It was a wonderful experience, a real developer.

Cattle and sheep we dealt in to some extent also during war days, but the soldier wanted chiefly pork, so that was mainly the kind of meat we made. Then, too, in 1917 we had soft corn, and hogs seemed to be the best chance to save it. Luckily we bought our hogs before most people had gone hog crazy, and they made lots of money. Were we to have another soft-corn year we would be very cautious about buying hogs in the expectation that too many people might remember 1917 and its lesson and all feed hogs.

During the war almost anything which could be held in one's possession a short while made money, and the longer it could be held the more it made. When the war ended it seemed but natural that the reverse process might set in at any time, so we became cautious in our buying of live stock and of feeds, whereas we had been almost reckless before. When the slump in live-stock values set in it caught us with two loads of very cheap cattle, cheap because we felt that if readjustment came the drop would not be so precipitous, measured in dollars, although it might be in terms of percentage. It caught us with but one load of hogs, whereas we had been accustomed to having well up to a thousand at a time during '17 and '18. As soon as we were sure reaction had set in, and that this was not merely a minor decline, we loaded out everything we felt would do to go, thereby saving ourselves from the full consequences of the break.

Later, in November of 1920, Mr. Riegel and I went to the International, at Chicago, wondering if the decline had been sufficient to warrant some cautious investment again. We talked, of course, to all the live-stock men we could and to commission men. We got all sorts of views, but the thing which really determined our course was a long chat with the buyer for one of the big wholesale grocery houses of Chicago. We decided that, with things as bad in manufacturing and wholesale endeavor as he pictured them, the slump was sure to continue and spread, and we went home and immediately sent in two carloads of odds and ends, a few spare cows and their calves, a few home-raised lambs, and, I believe, a few odd hogs. It turned out that the grocery buyer's tale of woe had saved us money.

One of the things the farmer must learn is that all lines of industry and business are so closely correlated that when several others are suffering severely his own can not long escape the consequences. We keep our eye too closely on our own cog in the wheel. If we would but look forward to the cogs of other enterprises, we might more often be warned of approaching dangers, and stop or slow down the machinery before we suffer the full effects of the jolts in store for us. It does little good to pull the throttle after the jolts are received.

Why did not some wise man tell us *last spring* to grow less corn? We were sorely tempted to eliminate corn from our 1921 operations altogether, but our friends made so much fun of us that we merely reduced it about 34 per cent from what it normally would have been. Signs were not lacking early last spring and earlier, it seemed to us, that the world might not need a large crop of corn and oats, but might be short of bread. A "grow less corn" campaign inaugurated *now* but emphasizes a phenomenon the average farmer has had abundant opportunity to witness. Before the trumpet of alarm quits sounding it is quite possible that some lucky farmer may detect symptoms of a growing corn demand, coupled with decreased supply, and may reap a fat reward by *increasing* rather than decreasing his acreage of corn. The writer is not posing as a prophet, nor threatening to pursue this course himself in the immediate future, but he does not intend to keep his eye fixed too steadily on the "grow less corn" propaganda.

"THE PERSONAL EQUATION."

My paper is already too long, but let me mention one other factor of success in farming, as it is a factor in every business. I mean the factor which is generally referred to as "the personal equation."

I suppose I am not expected to mention it, except possibly indirectly. But a man's success is so dependent on his recognition of his own limitations of temperament, and his own capacity for thought and work, that it seems foolish to overlook this factor either as applied to one's self or to his business associates and employees. Without such recognition an ambitious man may undertake more than he can accomplish. Moreover, he may still *more* easily overload his fellow-workers. To this factor belongs that power of discrimination which recognizes and deals with *essentials first,* allowing those things which *can* wait to remain undone until *vital* things have received attention, even though this may involve the subordination of personal inclination and even of pride in appearance. The degree to which the individual succeeds in clearly, tolerantly, and dispassionately analyzing the advice of friends and onlookers, business associates and employees, as well as the statistical data of his own past experiences and that of others, in the light of probable needs of the future, largely determines his success. Were we to carefully inquire into the causes of outstanding success on those farms which we generally recognize as examples of successful corn belt farming, I venture to say that we would, without exception, conclude that the keenness and accuracy of the reasoning of the man, or men, in executive control had been a large factor in that success.

Summarizing the factors of success as measured in terms of dollars, may we say that the chief ones are included in the following?

1. Reduction of the cost of production, primarily by reducing expenditures, secondarily by increasing crop yields with little or no added outlay.

2. Diversification of crops and enterprises as insurance against loss, to afford more elasticity to one's scheme of management, and to equalize the distribution of labor.

3. Prevention of wastes by conversion on the farm of by-products and bulky materials uneconomical to transport into finished marketable commodities.

4. Adjustment of the business to meet changing needs and economical conditions.

5. The personal equation last discussed.

Finally, there is another factor which is not measured in dollars, but in human happiness and contentment. This is, of course, contingent in large measure upon those factors mentioned before, whose success *is* measured in terms of money. Some may measure their success as farmers by the number and quality of the adventures in contentment their business has afforded; and who may say that he has utterly failed who has achieved naught but comfort, happiness, and contentment for himself and his family? This is a factor dependent, too, upon that last element of the personal equation, the degree of flexibility, if you please, of the human mind and soul, and the individual's attitude toward life and his fellow-man. This factor includes all those problems of education, religion, fraternity, and community health and welfare. To my mind the attitude in which the individual farmer and his family approach these subjects, and the degree of success with which they deal with them, constitute a large factor in corn belt farming, as indeed they do in life everywhere, but this factor is manifestly out of the realm of present discussion. May I urge, however, that *any* business, or scheme of existence, which heeds not the will of God and the welfare and happiness of our fellow-man can not long be successful, in the fullest sense of the word?

DISCUSSION BY E. C. YOUNG, PURDUE UNIVERSITY.

Gentlemen: My discussion of this paper will be very limited for two reasons; first, I have had insufficient time to study it carefully; and, second, my actual contact with the corn belt dates back only to September of this year. So far my time has been taken up in trying to get to a point where I can appreciate a paper such as Mr. Meharry has presented here this afternoon.

In looking over this paper the one thing that impressed me was his specific treatment of the problems. I presume that a man who continually meets specific problems, as any farmer does, would treat the subject in this way. There is a tendency, I believe, for teachers and investigators to get too far away from the farm and become so general in their interest that it is difficult to apply their findings to particular problems.

In outlining the system of farming on his Illinois farms, I do not believe Mr. Meharry intended to suggest that this system would necessarily fit all or even most corn belt conditions. The point he has made, however, is the necessity of making a close study of one's business. I was very much pleased to note the continual reference in the paper to cost accounts. In the discussion of yesterday I do not remember that the use of cost accounts, as a basis for changes in